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A time-series of Total Accounts for the Netherlands 1978-1984

O.J.C. Cornielje*

Abstract
In this paper some arguments are given why an alternative to the National Accounting framework and the Social Accounting Matrix approach may be interesting. This alternative approach, called 'Total Accounts', is based on neo-classical theory and therefore delivers more clear definitions of such concepts as income and income-redistribution. As an example, a time-series of Total Accounts for the Netherlands is presented.

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1. Introduction

The aim of this paper is to present an alternative for the traditional National Accounts as published yearly by the Central Bureau of Statistics and to show the advantages of this alternative for the presentation of data concerning tax-payments, income-distribution, changes of the relative magnitude of production sectors etc.. In this alternative framework special treatment is given to tax payments and net prices which various actors in the economy experience. These Total Accounts are especially useful as a benchmark-year data-set for applied general equilibrium models. The matrices are constructed following the method in Keller(1980) and therefore differ from the so called Social Accounting Matrices as used for most applied general equilibrium models (see Pyatt and Round, 1979). Differences exist for the treatment of sector-to-sector specific flows, the distinction made between factors of production and produced goods, the treatment of trade margins and taxes in general.

In this paper section 2 is devoted to the general line of construction. In section 3 some trends which can be extracted from the series of Total Accounts of the Netherlands for the years 1978-1984 are presented. Finally section 4 concludes this paper with some comments. The Total Accounts are presented in a separate appendix.

2. Construction of Total Accounts

In general the data-sets for applied general equilibrium models of countries are based upon 'Social Accounting Matrices'. These origin from Input-Output tables which focus on production mainly, and from National Accounts which focus on macro economic aggregates. In Input-Output tables it is necessary to use a uniform price for demand and supply. Therefore all transaction taxes are subtracted from the transactions on which these are levied. In Social Accounting Matrices this practice is followed too. Great detail is given to the measurement of real transactions using one uniform price for all sectors. Separate sub-matrices present the adjacent taxes. If it is

impossible to construct such sub-matrices, taxes are aggregated, either column-wise or row-wise In Social Accounting Matrices a disturbing fact has been inherited from the methodology of Input-Output tables. A one to one correspondence is suggested for columns and rows. Rows in general represent 'goods' and 'production factors (inputs)', while columns represent 'sectors', either production sectors or disaggregated final demand categories. As in Input-Output tables, a close correspondence between the 'Production sectors' and the goods they produce exists. In general, this is a one-to-one correspondence. If a sector produces two goods, the sector has been split. If a good is produced by two sectors, the sectors has been aggregated. Further, by the introduction of disaggregated final demand sectors (households) the inputs could be disaggregated according to the various sectors which deliver these inputs. As a result for a sector its column represents the income-sources and expenditures split according to the sectors of origin.

For use in a general equilibrium model, knowledge about the exact level of transactions between sectors and the adjacent taxes is not necessary. General equilibrium models are built on separate individual models for behaviour of sectors, both production ones and households. Thereby, a basic assumption due to assumptions of perfect competition is that it is irrelevant to know which sectors trade with each other. This could be called an assumption of 'privacy'. The only relevant information to determine individual behaviour of sectors concerns pricing and rationing signals. The only relevant information for equilibrating the model is the amounts supplied and demanded by each sector given those price and rationing signals. As a result of this basic implication of general equilibrium theory the exact determination of trade between two sectors is sometimes modelled in some arbitrary way. Often CES-type distribution or distance functions are used. For example, the demand for imports might be distributed among the various foreign countries using a descriptive CES-function.
Another important implication is that the demand for the output of a sector by the sector itself is irrelevant as only net trade is considered. In fact, the gross production levels can not be deducted from the compiled Total Accounts.

Here the concept of the 'Total Account' is presented. This concept has been

developed by Keller(1980) to describe the data necessary for a Johansen-type general equilibrium model. For each sector in the economy, only the total demand and supply of goods are given, but not the disaggregated sector-to-sector flows. Both production and household sectors are treated equal, as are produced goods and production factors. Demand and supply are given in net prices. These prices are the effective ones, including taxes paid by the sector on its demand or supply of the particular good. These tax-payments are presented in a separate table, by which it is possible to determine relative market-prices. From a general equilibrium modelling point of view these market-prices are arbitrary as only net prices determine sector behaviour. Finally, supply is represented by negative demand, and subsidies by negative taxes.

Total Accounts focus on the income and expenditure distribution per sector in net prices. This is opposite to National Accounts where various 'income distributions' can be distinguished: a primary one, using market prices (which are arbitrary in a general equilibrium setting), a secondary one, after tax- and subsidy-payments (which is relevant) and a tertiary one, after capital transactions (which is relevant if it concerns lump-sum allowances and payments which affect net income).

In the Dutch National Accounts direct and indirect taxes are distinguished. Direct taxes are levied on production factors or are lumpsum-taxes especially on households, while indirect taxes are levied on produced or imported goods. The idea behind this distinction is that 'indirect taxes' are paid by the households too, at least implicitely, because these taxes decreases disposible income indirectly through a price increase. In a Total Accounts framework this difference is of no use. Net prices and thus the goods on which the tax is levied matters. The determination of these goods can be a complicate matter as sometimes arbitrary decisions have to be made. In general, taxes are levied using juridic notions, which differ from economic counterparts. For instance, 'income' taxed by an income tax, may consist of income from labour, capital services, the selling of privately produced goods, social security income etc..

To present the way how Total Accounts are constructed and which assumptions are made to determine various demands and supplies, a simple Keynesian-type

representation of the National Accounts is given in Table 1. In this table some aggregation is made which respect to the figures given in the National Accounts. For instance, sector-to-sector transactions of goods are aggregated per sector. Further all taxes paid by sectors are aggregated into the last row, which is the opposite ot the sum of all other rows. Therefore all columns sum to zero, as do all rows.

Table 1. The National Accounts in Tabular format

	Prod.	Invest.	Govern.	Priv.	Foreign	Sum
Goods	$-Y$	I	G	C	X	0
Savings	$D+S_P$	$-S$	S_G	S_H	S_F	0
Labour	L_P	0	L_G	$-L$	L_F	0
Capital S.	P	0	$-P_G$	$-P_H$	$-P_F$	0
Imports	M_P	M_I	M_G	M_H	$-M$	0
Taxes Paid	$-T_P$	0	T	$-T_H$	$-T_F$	0
Sum	0	0	0	0	0	

Notice that various kinds of sectors can be distinguished: production sectors, called firms, and 'final demand' sectors, called households, real sectors, e.g. the Foreign sector, and imaginary sectors, e.g. the Capital goods sector. Imaginary sectors are used to represent macro-economic notions (e.g. saving and investment) or to solve disaggregation problems (the determination of firm-owners among various household types).

Next, to derive a Total Accounts, it is necessary to perform various transformations of this first table. These transformations are the results of various assumptions about the behaviour of sectors (so, these are due to the economic theory i.e. Neo-Classical theory):

1. In general, imports are prefectly substituable with domestic goods. Therefore, imports asked by the domestic households must be redirected through the supply of the production-sector to the consumption of these sectors.
2. Profits of firms must represent total profits of these firms, including

retained earnings, as profits represent the usage of capital services. As firms are 'owned' by households, accumulation of capital due to retained earnings is represented by additional savings of the households equal to an additional 'virtual' profit-distribution. This is quite realistic. In reality the increase of the capital installed at a production sector is often represented by an equal increase of the value of the shares of this sector.

As result of these assumption the matrices given in Table 2 must be added to Table 1 to give Table 3 These kind of adaptations are quite simple to make. The data can still be found in the National Accounts. Notice that the adjustments have a rectangluar shape. Therefore, the sum of rows and columns remain zero!

Table 2. The Transformation Matrix due to assumptions 1 and 2

	Prod.	Invest.	Govern.	Priv.	Foreign	Sum
Goods	$-M_G - M_H$	0	$+M_G$	$+M_H$	0	0
Savings	$-S_P$	0	0	$+S_P$	0	0
Labour	0	0	0	0	0	0
Capital S.	$+S_P$	0	0	$-S_P$	0	0
Imports	$+M_G+M_H$	0	$-M_G$	$-M_H$	0	0
Taxes Paid	0	0	0	0	0	0
Sum	0	0	0	0	0	0

Table 3. The adapted National Accounts after 1 and 2

	Prod.	Invest.	Govern.	Priv.	Foreign
Goods	$-Y-M_G-M_H$	I	$G+M_G$	$C+M_H$	X
Savings	D	-S	S_G	S_H+S_P	S_F
Labour	L_P	0	L_G	-L	L_F
Capital S.	$P+S_P$	0	$-P_G$	$-P_H-S_P$	$-P_F$
Imports	$M_P+M_G+M_H$	M_I	0	0	-M
Taxes Paid	$-T_P$	0	T	$-T_H$	$-T_F$

Another type of adaptations results from differences between juridic and economic notions. So, these are due to the imperfect manner in which data are collected. For instance, profits earned by firms which do not have the 'legal' status of an 'incorporated company' are added to labour earnings of the owner of the firm. Income taxes are levied on the sum of both. Therefore, both are inseparable from the view of the fisc and the Central Bureau of Statistics. This results in another kind of adaptations to split joint observations of demand of two separate goods and the taxes levied on these goods. This is possible by the next assumptions:

3. If demand for two goods are summed, the goods are split according to some objective measure which represents real demand for at least one of these goods.
4. If some measure of the demand share in market prices exists, the average market price is used to determine the demand in market prices.
5. Finally, taxes are split in proportion to the amounts bought or sold in market prices.

In case of the example mentioned, assumptions 3, 4 and 5 imply that the numbers of self-employed workers N_{SE} and those paid N_W are used to determine the labour income of self-employed $-L_{SE}$ by

$$L_{SE} = \frac{N_{SE}}{N_{SE} + N_W} * L \quad .$$

The numbers N_{SE} and N_W could be measured in man-years. The resulting amount

is brought from the row of profits to the row of labour transactions. This results in Table 4.

Table 4. The adapted National Accounts after 3, 4 and 5

	Prod.	Invest.	Govern.	Priv.	Foreign
Goods	$-Y-M_G-M_H$	I	$G+M_G$	$C+M_H$	X
Savings	D	$-S$	S_G	S_H+S_P	S_F
Labour	L_P-L_{SE}	0	L_G	$-L+L_{SE}$	L_F
Capital S.	$P+S_P+L_{SE}$	0	$-P_G$	$-P_H-S_P-L_{SE}$	$-P_F$
Imports	$M_P+M_G+M_H$	M_I	0	0	$-M$
Taxes Paid	$-T_P$	0	T	$-T_H$	$-T_F$

Another important issue concerns the consequences, which results from the small-open country-assumption if applicable:

6. If the country under consideration fulfills the small-open-country assumption, all imported goods can be aggregated in one good. Therefore the imports of all goods c.q. labour, capital goods and capital services must be redirected through the import-row.

For labour and capital services this assumption can be fulfilled when Table 1 is composed. Then, the expenditure and income account of the foreign sector are not balanced. In case of a shortage on the balance of payments, S_F is negative, which implies an import of capital goods. Then the Total Accounts must be adapted to the one of Table 5. Notice that this adaptation only occurs when a surplus on the balance of payments exists. Therefore surplusses and deficits are treated unequal, which is rather a flaw in the methodology of the Total Accounts.

Table 5. The adapted National Accounts after 6

	Prod.	Invest.	Govern.	Priv.	Foreign
Goods	$-Y-M_G-M_H$	I	$G+M_G$	$C+M_H$	X
Savings	D	$-S+S_F$	S_G	S_H+S_P	0
Labour	L_P-L_{SE}	0	L_G	$-L+L_{SE}$	L_F
Capital S.	$P+S_P+L_{SE}$	0	$-P_G$	$-P_H-S_P-L_{SE}$	$-P_F$
Imports	$M_P+M_G+M_H$	M_I+S_F	0	0	$-M+S_F$
Taxes Paid	$-T_P$	0	T	$-T_H$	$-T_F$

Until now, all flows are measured by their values using market prices. Next, all amounts must be adapted by distributing tax payments given by the last row among the rows of transactions. This must be done for those tax payments which vary with the size of the transactions either measured by value or quantity. In general this is a simple operation, but the next remarks must be accounted for:

1. Distribute the income taxation of the private household between the labour and capital service supply of this household.
2. As the V.A.T. ('B.T.W.') is essentially an end-user tax, redirect the tax payment by the firms to the public and private household.
3. Payments for pension schemes are added to the labour taxes paid by firms and households. Pension-payments are treated as negative savings.
4. Subsidies on investments are in general deducted from the taxes on capital services paid by firms. This must be corrected. Therefore, taxes on capital services increase, while subsidies on capital demanded by the private household must be increased.
5. 'Lump-sum subsidies and taxes' levied on firms are in general counted as taxes on the demand of capital services, unless these taxes can be traced back to the usage of other goods by the production sectors.

In case the Total Accounts is needed for a general equilibrium model with e.g. fixed supply of capital services, other adaptations may be necessary. For instance, splitting the demand and supply of capital services by the public household can be necessary. Further, it is possible to split the public household into a public firm producing public goods and a public

household consuming the e public goods. The latter is a cosmetic operation.

Finally, according to the level of *détail* needed, the various firms and households can be disaggregated. The Dutch Central Bureau of Statistics is busy to construct a highly disaggregated Total Accounts for the Netherlands based upon various sources of information, e.g. Input-output-tables, Income and expenditure surveys etc.. For this, see Keller e.a. (1988).

3. A time-series of Total Accounts

In this section the series of Total Accounts of the Netherlands for the years 1978-1984 as given in Appendix A is illustrated. In these years the Dutch economy was slowly sinking into a recession. High wage increases and a very rapid expansion of the social security sector occurred. The latter was partially due to these high inflation and unemployment rates. The years 1981 and 1982 have turned out to be a breakpoint. In 1982 a right-wing government was established. This government started a policy of cutting down the public and social security budgets and attaining a nation-wide wage restraint by attaining a agreement with the employers' and labour organizations. The latter organizations accepted the agreement under the threat of further increasing unemployment. The various charts presented show this breakpoint. Charts on the 'income' sources of the private household and of the fisc, the cost shares of the firm sector, tax rates on labour per sector and the influence of the government on the economy are given.

In the Appendix the full Total Accounts for 1978-1984 are given. Some remarks must be made first. The Total Accounts are compiled using a Lotus-123 spreadsheet, in which the method as described by Keller(1980) is implemented. In the spreadsheet data were entered using the yearly published 'Nationale Rekeningen' of the Dutch Central Bureau of Statistics as source. For compilation of the Total Accounts for year y, the National Accounts for year y+2 was used. This was done to use accurate and stable figures. In particular, the National Accounts tables, the tables on taxes and employment and the Input-Output tables were used to provide the necessary figures.

In the appendix the total income ν of a sector is defined as the sum of

goods supplied plus lump-sum income λ. Cost and income shares are measured with respect to this total income. Therefore the shares sum up to λ/ν. Tax rates are equal to the amount of taxes paid divided by the expenditure on this good measured in market price, thus exclusive of taxes paid.

In chart 1 the relative magnitude of the various income sources of the private household sector is illustrated. It must be remembered that these three sources, labour income, the yield on capital and social benefits are net of taxes. It can be seen clearly that at the highpoint of the recession in 1980 and 1981 the share of capital income was at it lowest level. Further, the share of labour income raised until 1980, although unemployment increased too. This is a indication for a rapid increasing wage rate at that time. After the breakpoint in 1981 wages stabilized. Then, as unemployment still was increasing, the labour share began to lower in favour of both capital income and social security income. Notice, that in 1981 the interest rate was at is highest level since the second World War. The interest rate equals the price of capital services divided by the price of capital goods. The latter was very low relative to the price of capital services in 1981.

Chart 1. The relative magnitude of the income sources of the private household

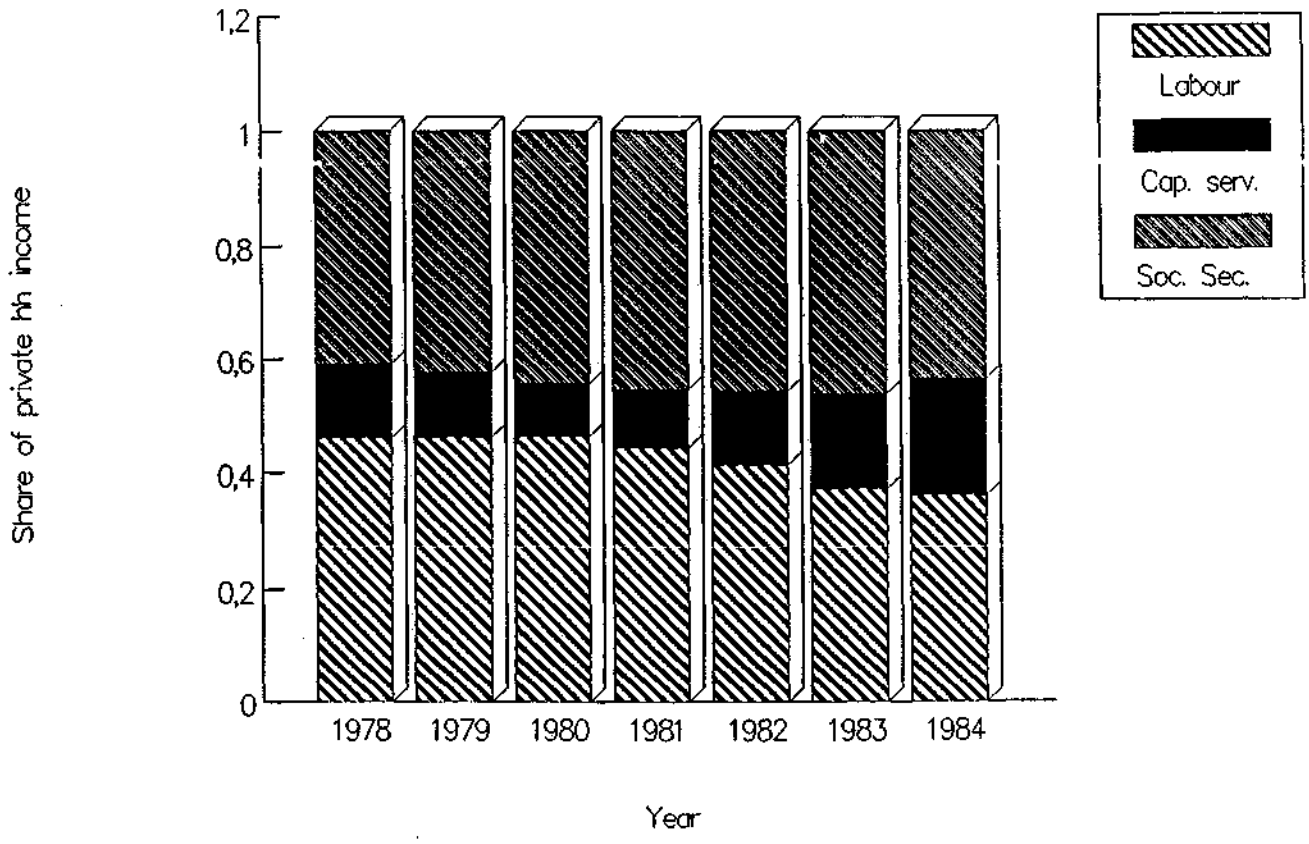


Chart 2 presents the re..ative magnitude of the positive tax yields on the various goods distingui:hed. It is suprising that these shares are quite stable. This can be exp.ained by the fact, that although profits vary tax payments on profits can be stabilished as losses can be deducted from profits in the next fiv.: years. Further, the subsidy on capital investment (W.I.R.) was a so calle:l tax deduction, for which positive tax payments must exist.

Chart 2. The relative m ıgnitude of the tax sources of the fisc

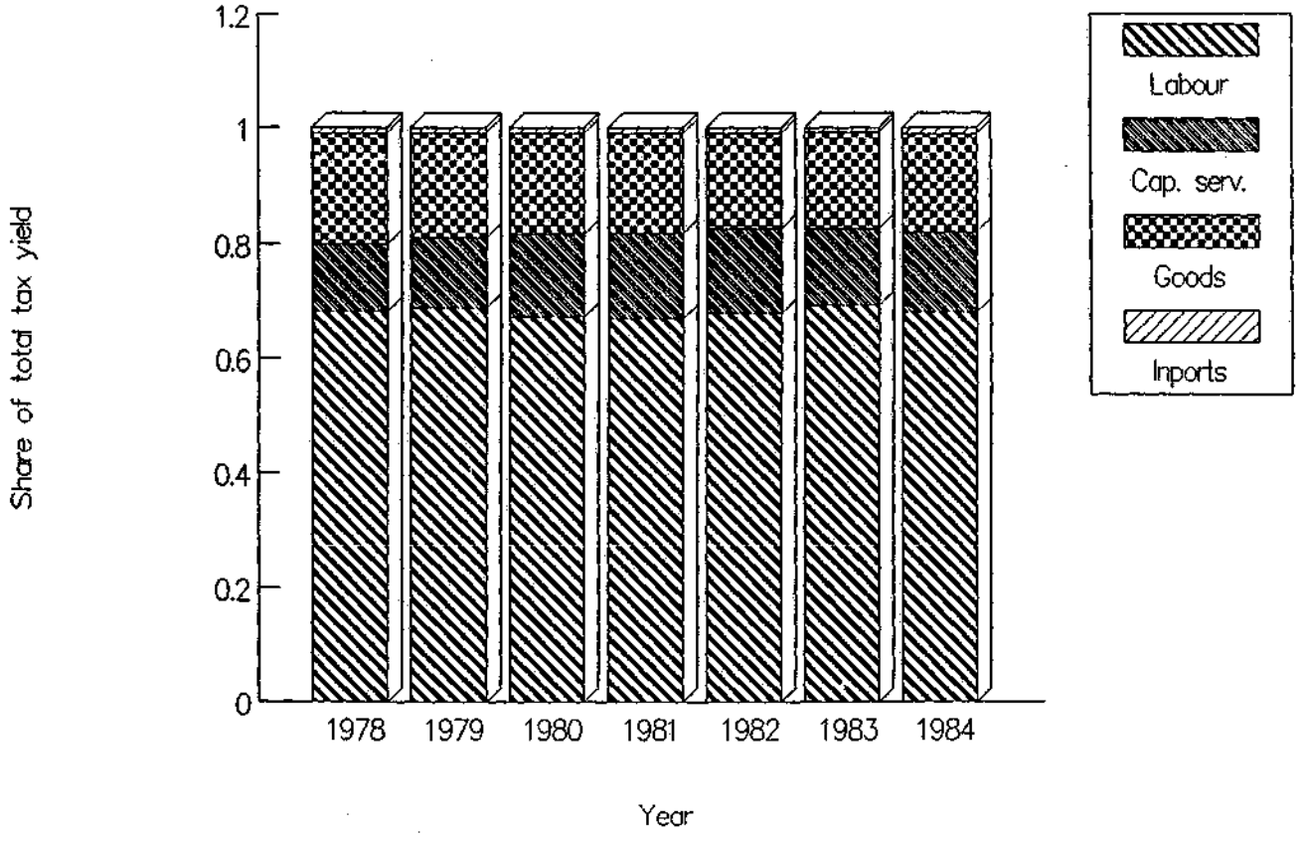


Chart 3 presents the sh.res of total output value for the various inputs in the production process. Imports increasingly penetrated the domestic market as the steady growing share indicates. After the wage stabilization of 1982 this trend has been stopped. However, the share of labour in the production value remained decreasing in favour of profits. Depreciation allowances have remained quite stable a: ca. 7%.

Chart 3. The cost shares of the production inputs of the private firm

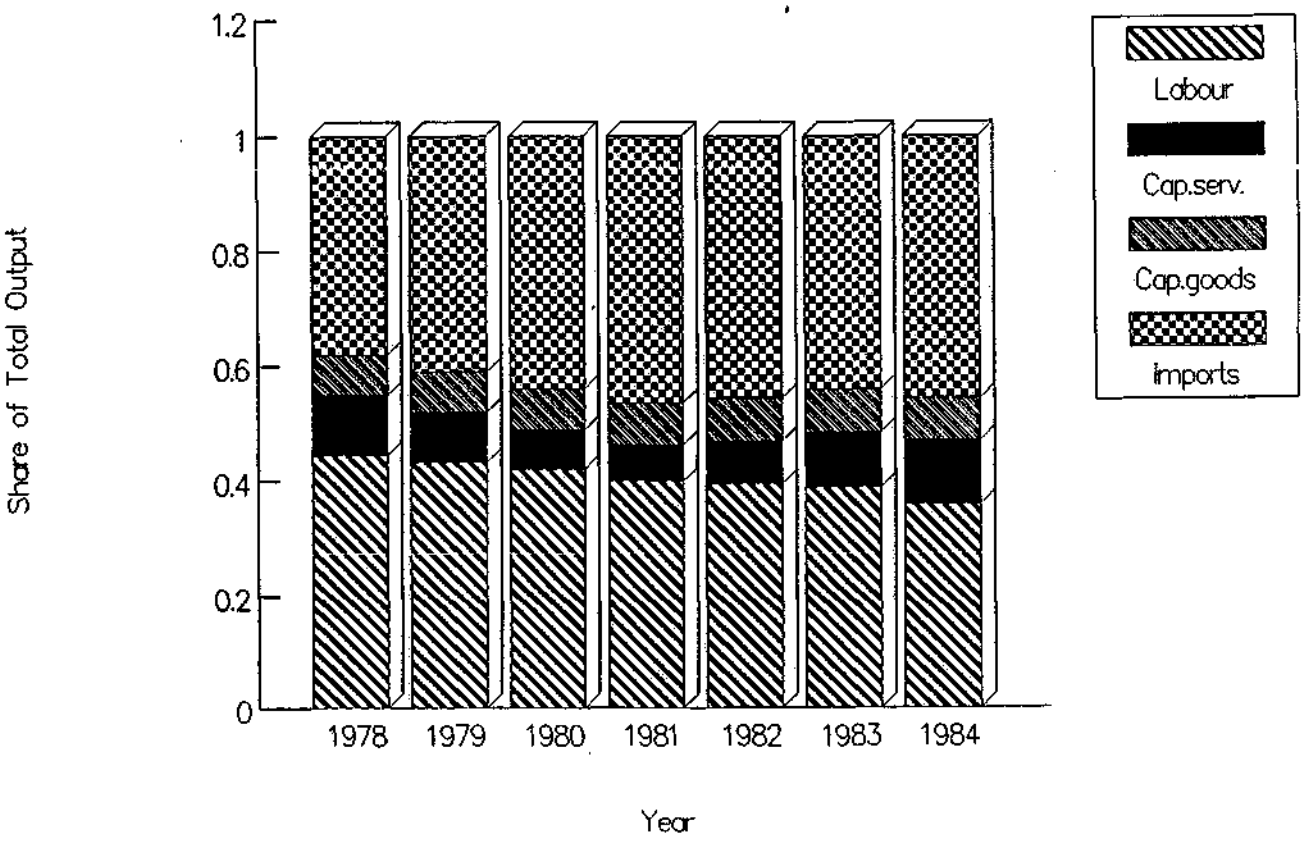
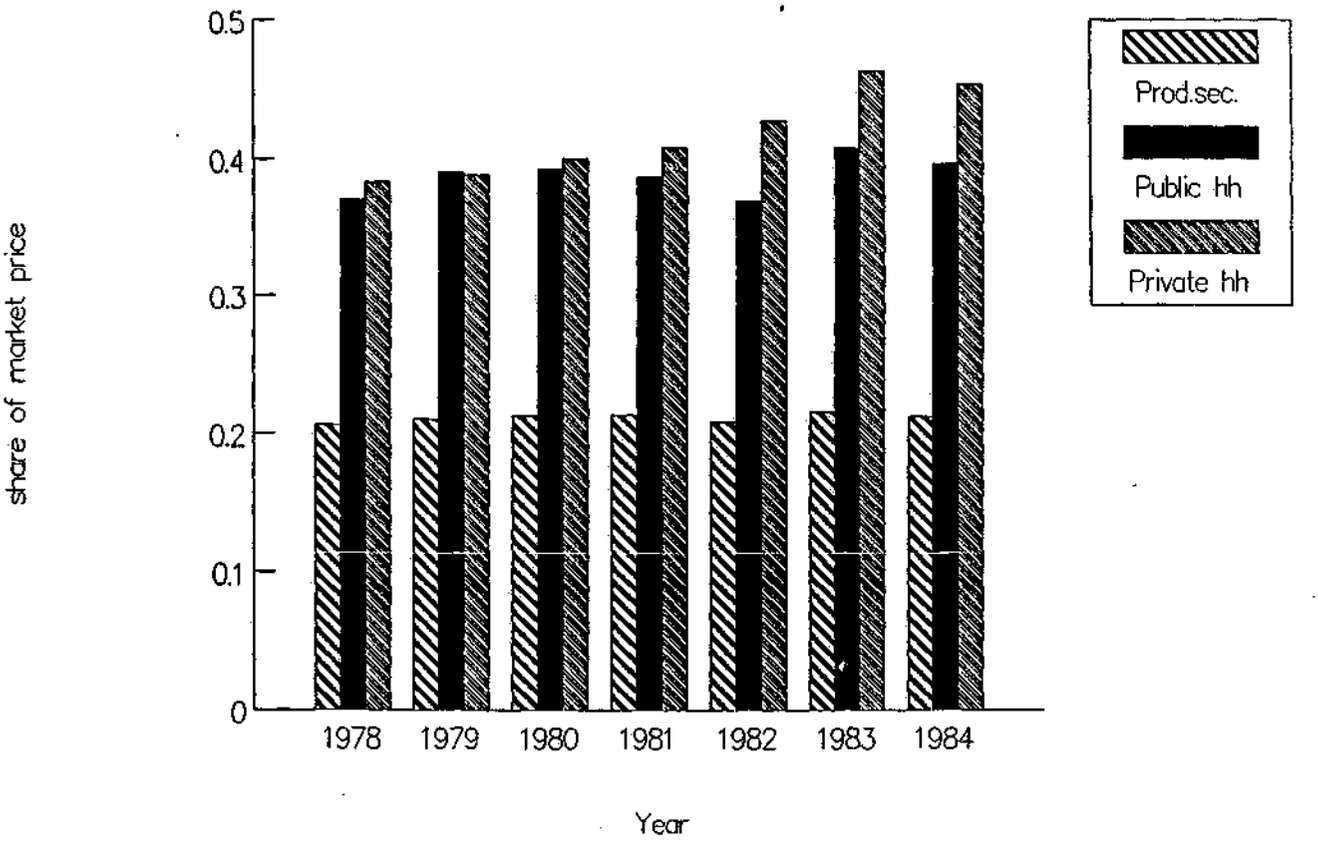


Chart 4 shows clearly that the firm sector has experienced quite a stable tax rate on labour. This is contrary to the common 'observation' of increasing labour costs due to social security taxes. On the contrary, the tax rate paid by the private household itself has increased. Of course, this has imputed quests for 'income compensations' by the labour unions. This was an important source of increasing labour wage rates. One goal of the national agreement of 1982 was to stabilize wage rates by breaking these income compensations due to changes in taxation.

Chart 4. The tax rates on labour paid by demanding and supplying sectors



Finally, charts 5 and 6 show the share of the public sector in domestic income and the share of lump-sum income in total domestic income. Domestic income is defined as the sum of the total incomes of all domestic sectors. From chart 5 it can be seen that the total income of the public sector has remained stable when it is compared to the sharp increase of the total income of the private household. In fact, many cuttings of the government budget have affected public consumption and investments. On the contrary, the redistributing function of the government increased somewhat as can be

seen from chart 6. As a percentage of total domestic income the total tax yield raised from 53.8% in 1978 to 58.2% in 1981 and decreased afterwards to 55.4%. Notice that this figure can not be higher than 100%. The traditional measure of the 'tax pressure', which is the share of tax yield in the National Income can be higher than 100%. In this case the 'secondary income measure' of total tax yield is measured against the 'primary income measure' of the National Income. To conclude this section, both charts show that the government has increased its redistributing function over the years, while it has neglected its traditional tasks of public consumption (defence, education etc.) and investments (infrastructure).

Chart 5. The domestic income increase due to increased private spending

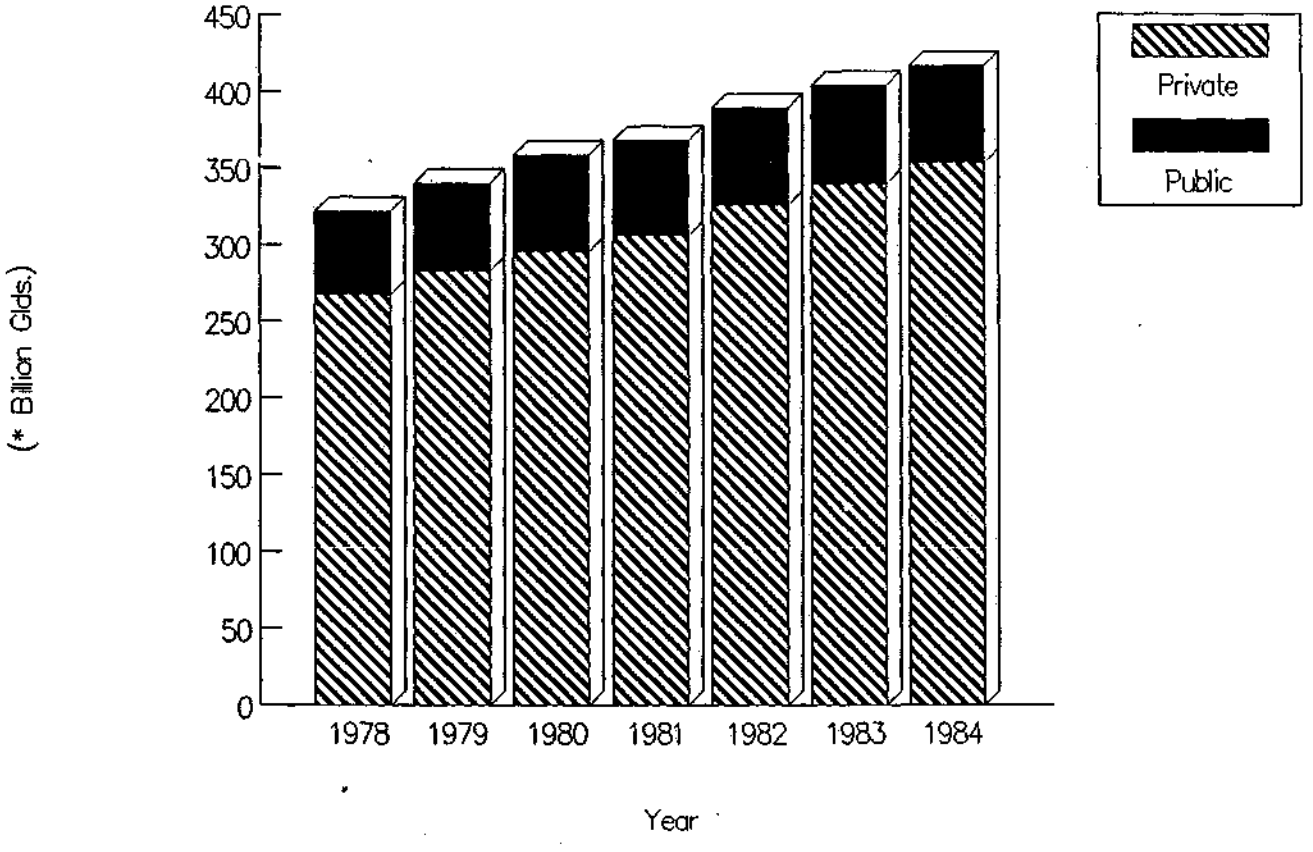
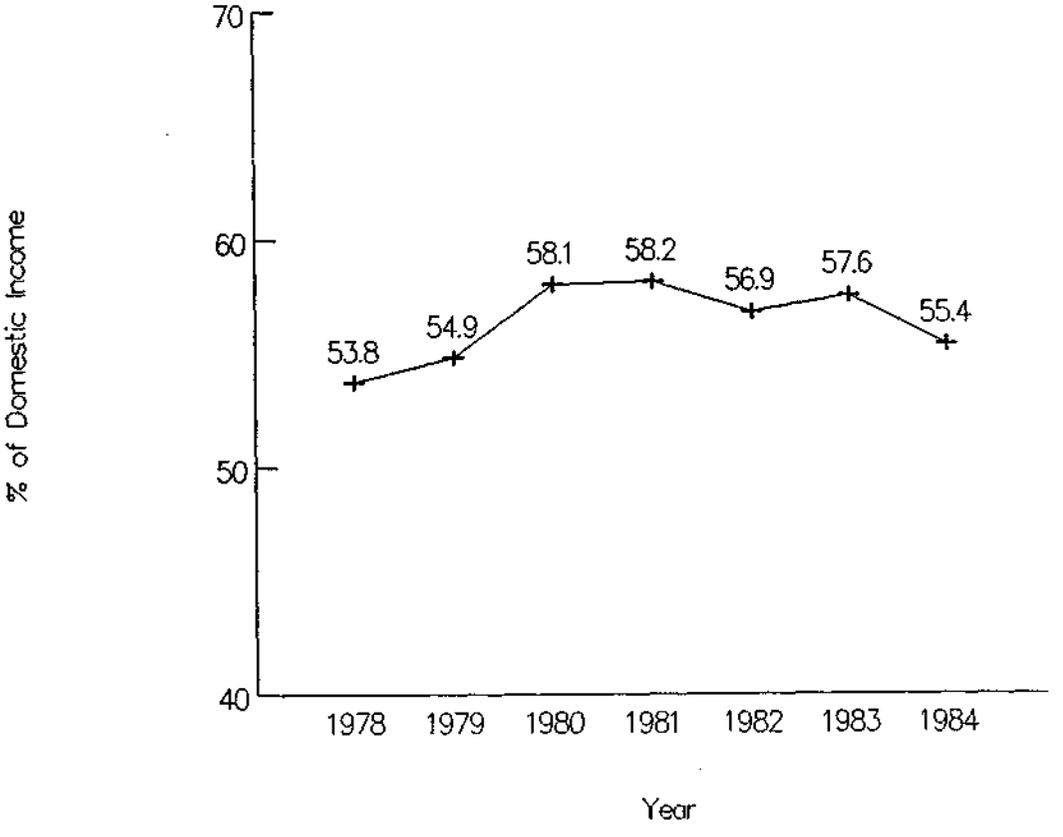


Chart 6. The share of lump-sum income in total domestic income



4. Concluding remarks

In this paper an alternative presentation of macro economic data of a national economy is explained. These so called 'Total Accounts' has been compiled for the Netherlands 1978-1984. It has been shown that these Accounts provide important macro-economic information, which from a viewpoint of economic theory is based on consistent assumptions. Flaws in measures based on the National Accounts are circumvented by using net prices for each sectors demand and supply in stead of arbitrary market prices. Further, the traditional distinction between primary and secondary income distribution, which induces a lot of confusion, has been resolved in favour of a more natural distribution based upon the measure of the total income of a sector.

Literature

Central Bureau of Statistics, 1981-1987, Nationale rekeningen 1980-1986 (Centraal Bureau voor de Statistiek, Voorburg, The Netherlands).

Keller, W.J., 1980, Tax Incidence, a general equilibrium approach, (Noth Holland, Amsterdam, The Netherlands).

Keller, W.J., C. Zeelenberg, R.D. Huigen and P. Kooiman, Effecten van belastingheffing: een toegepaste algemeen evenwichtsanalyse (Effects of taxation: an applied general equilibrium analysis), in Preadviezen van de Vereniging voor de Staatshuishoudkunde, (Stenfert Kroese, Leiden).

Pyatt, G. and J.I. Round, 1979, Accounting and fixed price multipliers in a Social Accounting Matrix Framework, Economic Journal 89, 850-873.

Pyatt, G. and J.I. Round, 1985, Social accounting matrices, a basis for planning, (The World Bank, Washington D.C.).

Appendix. The Total Accounts for 1978-1984.

In all tables, the amounts of sub-tables A and B are measured in millions of Dutch guilders. The cost shares of part C are relative to the total income of a sector, which is the sum of all earnings including supplies and lump-sum income. The tax rates in part D are with respect to the market price. Signs are such that a negative sign always implies a subsidy.

Table 1. Total Accounts 1978

	prod.sector	cap.goods	public hh	private hh	for. hh	fisc
A. Expenditures (1 million Dfl.)*						
goods	-350326	52286	11390	180700	133340	27390
cap.good	24590	-62750	4250	31540	0	-2370
labour	155508	0	39140	-97536	830	97942
cap.serv	36462	0	-2740	-27694	10950	16978
imports	133766	10464	0	0	-142990	1240
lumpsum	0	0	52040	87010	2130	141180
Income	350326	62750	54780	212240	145120	141180
B. Tax payments (1 million Dfl.)*						
goods	-520	0	2662	25248	0	27390
cap.good	0	0	-100	-2270	0	-2370
labour	26610	0	10580	60752	0	97942
cap.serv	14200	0	0	2778	0	16978
imports	1240	0	0	0	0	1240
C. Cost shares						
goods	-1.0000	0.8332	0.2079	0.8514	0.9188	
cap.good	0.0702	-1.0000	0.0776	0.1486	0.0000	
labour	0.4439	0.0000	0.7145	-0.4596	0.0057	
cap.serv	0.1041	0.0000	-0.0500	-0.1305	0.0755	
imports	0.3818	0.1668	0.0000	0.0000	-0.9853	
λ/ν	0.0000	0.0000	0.9500	0.4100	0.0147	
D. Tax rates						
goods	-0.0015	0.0000	0.3050	0.1624	0.0000	
cap.good	0.0000	0.0000	-0.0230	-0.0671	0.0000	
labour	0.2064	0.0000	0.3704	0.3838	0.0000	
cap.serv	0.6379	0.0000	0.0000	0.0912	0.0000	
imports	0.0094	0.0000	0.0000	0.0000	0.0000	

Table 2. Total Accounts 1979

	prod.sector	cap.goods	public hh	private hh	for. hh	fisc
A. Expenditures (1 million Dfl.)*						
goods	-387337	52967	13040	194040	155060	27770
cap.good	27140	-64490	2570	30590	0	-4190
labour	167076	0	41980	-103346	900	106610
cap.serv	33864	0	-3450	-26294	14960	19080
imports	159257	11523	0	0	-169410	1370
lumpsum	0	0	54140	94990	1510	150640
Income	387337	64490	57590	224630	170920	
B. Tax payments (1 million Dfl.)*						
goods	-1510	0	2776	26504	0	27770
cap.good	0	0	-110	-4080	0	-4190
labour	29000	0	11800	65810	0	106610
cap.serv	16490	0	0	2590	0	19080
imports	1370	0	0	0	0	1370
C. Cost shares						
goods	-1.0000	0.8213	0.2264	0.8638	0.9072	
cap.good	0.0701	-1.0000	0.0446	0.1362	0.0000	
labour	0.4313	0.0000	0.7289	-0.4601	0.0053	
cap.serv	0.0874	0.0000	-0.0599	-0.1171	0.0875	
imports	0.4112	0.1787	0.0000	0.0000	-0.9912	
λ/ν	0.0000	0.0000	0.9401	0.4229	0.0088	
D. Tax rates						
goods	-0.0039	0.0000	0.2705	0.1582	0.0000	
cap.good	0.0000	0.0000	-0.0410	-0.1177	0.0000	
labour	0.2100	0.0000	0.3910	0.3890	0.0000	
cap.serv	0.9491	0.0000	0.0000	0.0897	0.0000	
imports	0.0087	0.0000	0.0000	0.0000	0.0000	

Table 3. Total Accounts 1980

	prod.sector	cap.goods	public hh	private hh	for. hh	fisc
A. Expenditures (1 million Dfl.)*						
goods	-424659	56489	13780	207500	176810	29920
cap.good	30090	-67300	4980	24830	0	-7400
labour	177862	0	44080	-107523	1030	115449
cap.serv	29278	0	-4340	-21807	21390	24521
imports	187429	10811	0	0	-196760	1480
lumpsum	0	0	58500	103000	2470	163970
Income	424659	67300	62840	232330	199230	
B. Tax payments (1 million Dfl.)*						
goods	-1800	0	3020	28700	0	29920
cap.good	0	0	-100	-7300	0	-7400
labour	31240	0	12430	71779	0	115449
cap.serv	21980	0	0	2541	0	24521
imports	1480	0	0	0	0	1480
C. Cost shares						
goods	-1.0000	0.8394	0.2193	0.8931	0.8875	
cap.good	0.0709	-1.0000	0.0792	0.1069	0.0000	
labour	0.4188	0.0000	0.7015	-0.4628	0.0052	
cap.serv	0.0689	0.0000	-0.0691	-0.0939	0.1074	
imports	0.4414	0.1606	0.0000	0.0000	-0.9876	
λ/ν	0.0000	0.0000	0.9309	0.4433	0.0124	
D. Tax rates						
goods	-0.0043	0.0000	0.2807	0.1605	0.0000	
cap.good	0.0000	0.0000	-0.0197	-0.2272	0.0000	
labour	0.2131	0.0000	0.3927	0.4003	0.0000	
cap.serv	3.0118	0.0000	0.0000	0.1044	0.0000	
imports	0.0080	0.0000	0.0000	0.0000	0.0000	

Table 4. Total Accounts 1981

	prod.sector	cap.goods	public hh	private hh	for. hh	fisc
A. Expenditures (1 million Dfl.)*						
goods	-456427	52057	15170	215280	204620	30700
cap.good	33060	-72010	1170	29570	0	-8210
labour	181572	0	45020	-108377	1120	119335
cap.serv	28998	0	-6350	-25263	29110	26495
imports	212797	19953	0	0	-231190	1560
lumpsum	0	0	55010	111210	3660	169880
Income	456427	72010	61360	244850	234850	169880
B. Tax payments (1 million Dfl.)*						
goods	-1650	0	3152	29198	0	30700
cap.good	0	0	-80	-8130	0	-8210
labour	31950	0	12580	74805	0	119335
cap.serv	23920	0	0	2575	0	26495
imports	1560	0	0	0	0	1560
C. Cost shares						
goods	-1.0000	0.7229	0.2472	0.8792	0.8713	
cap.good	0.0724	-1.0000	0.0191	0.1208	0.0000	
labour	0.3978	0.0000	0.7337	-0.4426	0.0048	
cap.serv	0.0635	0.0000	-0.1035	-0.1032	0.1240	
imports	0.4662	0.2771	0.0000	0.0000	-0.9844	
λ/ν	0.0000	0.0000	0.8965	0.4542	0.0156	
D. Tax rates						
goods	-0.0036	0.0000	0.2623	0.1569	0.0000	
cap.good	0.0000	0.0000	-0.0640	-0.2156	0.0000	
labour	0.2135	0.0000	0.3878	0.4084	0.0000	
cap.serv	4.7105	0.0000	0.0000	0.0925	0.0000	
imports	0.0074	0.0000	0.0000	0.0000	0.0000	

Table 5. Total Accounts 1982

	prod.sector	cap.goods	public hh	private hh	for. hh	fisc
A. Expenditures (1 million Dfl.)*						
goods	-473908	51898	15980	224060	212600	30630
cap.good	35440	-76590	-6460	39210	0	-8400
labour	186379	0	46720	-108586	1350	125863
cap.serv	34811	0	-3770	-33974	30220	27287
imports	217278	24692	0	0	-240420	1550
lumpsum	0	0	52470	120710	3750	176930
Income	473908	76590	62700	263270	244170	
B. Tax payments (1 million Dfl.)*						
goods	-2160	0	3072	29718	0	30630
cap.good	0	0	-100	-8300	0	-8400
labour	32110	0	12600	81153	0	125863
cap.serv	24510	0	0	2777	0	27287
imports	1550	0	0	0	0	1550
C. Cost shares						
goods	-1.0000	0.6776	0.2549	0.8511	0.8707	
cap.good	0.0748	-1.0000	-0.1030	0.1489	0.0000	
labour	0.3933	0.0000	0.7451	-0.4125	0.0055	
cap.serv	0.0735	0.0000	-0.0601	-0.1290	0.1238	
imports	0.4585	0.3224	0.0000	0.0000	-0.9846	
λ/ν	0.0000	0.0000	0.8368	0.4585	0.0154	
D. Tax rates						
goods	-0.0046	0.0000	0.2380	0.1529	0.0000	
cap.good	0.0000	0.0000	-0.0157	-0.1747	0.0000	
labour	0.2081	0.0000	0.3693	0.4277	0.0000	
cap.serv	2.3794	0.0000	0.0000	0.0756	0.0000	
imports	0.0072	0.0000	0.0000	0.0000	0.0000	

Table 6. Total Accounts 1983

	prod.sector	cap.goods	public hh	private hh	for. hh	fisc
A. Expenditures (1 million Dfl.)*						
goods	-488747	51587	17330	232170	219770	32110
cap.good	36890	-81880	-5480	42660	0	-7810
labour	189054	0	46950	-102019	1290	135275
cap.serv	46626	0	-1670	-45841	27080	26195
imports	216177	30293	0	0	-244880	1590
lumpsum	0	0	57130	126970	3260	187360
Income	48874 7	8188 0	6428 0	27483 0	24814 0	
B. Tax payments (1 million Dfl.)*						
goods	-2450	0	3211	31349	0	32110
cap.good	0	0	-120	-7690	0	-7810
labour	33530	0	13610	88135	0	135275
cap.serv	23300	0	0	2895	0	26195
imports	1590	0	0	0	0	1590
C. Cost shares						
goods	-1.0000	0.6300	0.2696	0.8448	0.8857	
cap.good	0.0755	-1.0000	-0.0853	0.1552	0.0000	
labour	0.3868	0.0000	0.7304	-0.3712	0.0052	
cap.serv	0.0954	0.0000	-0.0260	-0.1668	0.1091	
imports	0.4423	0.3700	0.0000	0.0000	-0.9869	
λ/ν	0.0000	0.0000	0.8888	0.4620	0.0131	
D. Tax rates						
goods	-0.0050	0.0000	0.2274	0.1561	0.0000	
cap.good	0.0000	0.0000	-0.0224	-0.1527	0.0000	
labour	0.2156	0.0000	0.4082	0.4635	0.0000	
cap.serv	0.9989	0.0000	0.0000	0.0594	0.0000	
imports	0.0074	0.0000	0.0000	0.0000	0.0000	

Table 7. Total Accounts 1984

	prod.sector	cap.goods	public hh	private hh	for. hh	fisc
A. Expenditures (1 million Dfl.)*						
goods	-529627	57767	17360	239160	248560	33220
cap.good	38570	-92930	-4170	49730	0	-8800
labour	189725	0	46410	-104282	1270	133123
cap.serv	58815	0	-2670	-58638	29600	27107
imports	242517	35163	0	0	-275750	1930
lumpsum	0	0	56930	125970	3680	186580
Income	529627	92930	63770	288890	279430	186580
B. Tax payments (1 million Dfl.)*						
goods	-3650	0	3427	33443	0	33220
cap.good	0	0	-120	-8680	0	-8800
labour	33250	0	13180	86693	0	133123
cap.serv	24120	0	0	2987	0	27107
imports	1930	0	0	0	0	1930
C. Cost shares						
goods	-1.0000	0.6216	0.2722	0.8279	0.8895	
cap.good	0.0728	-1.0000	-0.0654	0.1721	0.0000	
labour	0.3582	0.0000	0.7278	-0.3610	0.0045	
cap.serv	0.1110	0.0000	-0.0419	-0.2030	0.1059	
imports	0.4579	0.3784	0.0000	0.0000	-0.9868	
λ/ν	0.0000	0.0000	0.8927	0.4360	0.0132	
D. Tax rates						
goods	-0.0069	0.0000	0.2460	0.1626	0.0000	
cap.good	0.0000	0.0000	-0.0296	-0.1486	0.0000	
labour	0.2125	0.0000	0.3966	0.4539	0.0000	
cap.serv	0.6952	0.0000	0.0000	0.0485	0.0000	
imports	0.0080	0.0000	0.0000	0.0000	0.0000	

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